

1           ADAPTIVELY CONFIGURABLE CLASS-A/CLASS-B TRANSMIT DAC  
FOR TRANSCEIVER EMISSION AND POWER CONSUMPTION CONTROL

ABSTRACT

5           A power efficient and reduced electromagnetic interference  
(EMI) emissions transmitter for unshielded twisted pair (UTP)  
data communication applications. Transmit data is processed by  
a digital filter. The digital filter output data is converted  
to a current-mode analog waveform by a digital-to-analog  
10 converter (DAC). The digital filter is integrated with the DAC  
binary decoder in a memory device such as a ROM with time  
multiplexed output. DAC line driver cells are adaptively  
configurable to operate in either a class-A or a class-B mode  
depending on the desired operational modality. A discrete-time  
15 analog filter is integrated with the DAC line driver to provide  
additional EMI emissions suppression. An adaptive electronic  
transmission signal cancellation circuit separates transmit data  
from receive data in a bidirectional communication system  
operating in full duplex mode. For a multi-transmitter system,  
20 timing circuitry staggers the time base of each transmitter to  
reduce the aggregate EMI emissions of the multi-transmitter  
system.

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